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The Death of the Prince of Hawai'i: A Retrospective Diagnosis

"WHAT A SAD STORY! I could hardly keep from crying." This from my friend Dr. Pete Halford, general surgeon, upon reading Rhoda Hackler's account of the death of Albert Edward Kauikeaouli Leiopapa a Kamehameha.¹ I felt much the same emotion and those I have queried, physicians or otherwise, react the same. Hackler comments that "To this day, the medical reason for the death of the Prince has not been agreed upon."² Although a precise diagnosis cannot be made and much important clinical information is not available, the detailed description assembled by Hackler from the letters of Mary Harrod Hobbs Allen, contemporary news media, and other records allows today's physician a much better basis for diagnosis than is commonly the case in historical illnesses. My own list of possible diagnoses includes (1) acute appendicitis (an abscess or "boil" in the appendix) with rupture and peritonitis; (2) volvulus of the small intestine (a twisting of the intestine on itself so that the opening is pinched off, producing gangrene of the bowel); and (3) intussusception (the bowel tube pushes down into itself causing the blood supply to be cut off). All three conditions are common in children and are potentially lethal. For confirmation I called upon Drs. Peter Halford, Brysson Greenwell, and V.J. Reddy,³ two general surgeons and a pediatrician.

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The Hawaiian Journal of History, vol. 28 (1994)

To summarize the medical history, it is clear that the disorder was centered in the abdomen despite the speculation and belief of the father that the child had sunstroke and the newspaper reports that he had inflammation of the brain, reassuringly called "a common disease among children." The condition started with the child being nervous and irritable, and the next day "his eyes looked heavy." By the afternoon, he was restless to the extent that a doctor was called. "On the third day, he was restless, putting his hands where his bowels were as if in pain. Chief Justice Elisha Allen told his wife it was obvious something was wrong with the child's stomach, but the doctors were puzzled as to the cause.

Despite short periods of improvement, the illness proved to be progressive. On the fourth day, the physicians were trying to cause the bowels to act, and thereafter he suffered fits and spasms and crying out in pain, all suggestive of bowel obstruction. The fifth day was much better, but on the sixth there was recurrence of severe spasm and the child appeared very, very sick, perhaps having convulsions from fever and approaching coma. His condition progressed to the inevitable. After just ten days of illness, he died August 27, 1862.

Appendicitis, the most likely diagnosis, often starts in a nondescript way with symptoms suggesting an upset stomach but proceeds in a few hours to localize in the lower right abdomen. Usually there is cessation of bowel movements because of paralysis of the gut or blockage due to swelling and irritation followed by cramps, spasm, and vomiting. Paradoxically, when the appendix ruptures into the cavity of the abdomen the irritation is relieved temporarily much like the opening of a boil on the skin. The patient appears to improve, but soon the spillage of the abscess into the abdominal cavity results in generalized sepsis (infection) with fever and most often progression to coma and death in a few days if antibiotics and surgery are not available.

Volvulus and intussusception may give a somewhat similar picture; even typhoid fever or a swallowed foreign body such as a fish bone are possibilities but much less likely. Mesenteric adenitis (viral inflammation of the lymph nodes along the small intestine) may mimic appendicitis but is self-limiting and nonlethal.

His father seemed to think that the child was suffering from sun-

stroke. The newspapers suggested that brain fever was the cause of the illness.⁴ Queen Lili'uokalani, writing about thirty-five years later, tells us that the prince became dissatisfied with a pair of boots, and burst into an uncontrollable fit of passion. His father sought to cool him off by putting the boy under an open faucet of cold, running water. The little one appeared to be unharmed, but later in the day broke down with nervous weeping, and could not be comforted. Then it was discovered that the cold douche and shock had brought on an attack of brain fever. From this he did not recover, but died on the 27 of August, 1862.⁵

From our current medical vantage point, there is little if anything to justify such conclusions as possible causes of his illness. The later stages of his affliction are most indicative of a generalized infection. Meningitis (brain fever) could result, but more likely he was having convulsions and coma due to high fever and dehydration. In any case, this is the end process and not the cause of his condition. If indeed Kamehameha IV died because of remorse over his part in this affair, there is no medical information to incriminate him.

Appendicitis was known to the ancient Egyptians, but the first written modern report appeared more than five hundred years ago.⁶ A current medical text states that "Acute appendicitis is the most frequent cause of persisting, progressive, abdominal pain in teenagers. It is common, [and] confusing, at all ages. There is no way to prevent development. The only way to reduce morbidity and mortality is to perform appendectomy before perforation or gangrene."⁷

The first appendectomy was done in 1736 in conjunction with drainage of an abscess in a scrotal hernia containing the perforated appendix. Another surgical treatment by incision and drainage (with survival) was reported in England in 1848. The first successful elective appendectomy was done in Fergus, Ontario, Canada, by Dr. Abraham Groves in 1883 (reported in 1961), and the first case diagnosed, operated upon, recovered, and reported was by Dr. N. Senn in 1889.⁸ In 1886 Dr. Reginald Heber Fitz of Boston published his classic paper defining appendicitis as a surgical condition,⁹ and Dr. Charles McBurney of New York outlined the clinical picture and described the incision in the right lower abdomen which bears his name.

The incidence of appendicitis decreased markedly from 1940 to



FIG 1. Queen Emma with portraits of King Kamehameha IV and the Prince of Hawai'i. (HHS)

1960, possibly because of the widespread use of antibiotics. At present, appendectomy comprises about 1 percent of all surgical operations. In a period of less than a century, the condition has gone from one usually fatal to one in which death is uncommon even when there are complications such as rupture and peritonitis.

Three major developments were necessary before surgical treatment could be a serious and practical approach to appendicitis: appreciation of the anatomy and pathology, antisepsis (and later asepsis), and anesthesia.

The anatomical and pathological basis of appendicitis was not well understood until the 1880s, some twenty years after the little prince died, so one is not surprised that the physicians were unable to make a specific diagnosis.

Louis Pasteur developed the germ theory before 1865, and soon thereafter Lister was successful with antisepsis using carbolic acid and steam spray in the operating suite to control infection, but the technique was difficult, hazardous to the personnel, and slow to be widely accepted. Asepsis (sterilization) quickly supplanted Lister's procedures. Together these techniques changed the image of surgery from that of sheer butchery to one of reasonable expectation of success. Even so, in 1900 abdominal surgery was not undertaken lightly by doctor or patient. Drainage (successful) of his appendiceal abscess forced delay of the coronation of King Edward VII and made appendicitis a "fashionable disease." Obviously these developments were too late for the little *ali'i*.

Anesthesia of a sort with alcohol or opium and even bleeding to reduce blood flow to the brain had been used for surgery. It seems every Western movie shows an episode of "biting the bullet." In 1842 Dr. Crawford W. Long, a Georgia practitioner, used ether to remove skin tumors, and the so-called discoverer of anesthesia, Dr. William Morton, demonstrated the use of ether anesthesia in 1846 at the Massachusetts General Hospital surgical theater. Chloroform was introduced in 1847 by Dr. James Young Simpson of Edinburgh, Scotland. Only two years in Hawaii, Dr. Charles H. Wetmore, missionary physician at Hilo, used ether for his wife's complicated labor and delivery in 1850. Robert C. Schmitt suggests that Wetmore's very casual mention of the use of anesthesia means it was already well known in Hawaii.¹⁰ Alas, without the first two tech-

nological requirements for abdominal surgery, this was of no help to our patient.

I was unable to determine just when the surgical removal of the appendix was first performed in Hawai'i. However, case summaries recorded from 1902 at Queen's Medical Center list appendicitis and appendectomy several times in a rather routine manner. On September 2, 1902, Dr. Clifford B. Wood incised and drained a walled-off appendiceal abscess in a thirteen-year-old boy, who then recovered over a six-week period in the hospital.

One of my patients told me of a childhood condition, well known among Hawaiians, called *'ōpū huli*, or "turned stomach," for which the treatment is massage. The Pukui and Elbert *Hawaiian Dictionary* lists *'ōpū huli*, a condition thought to occur as a result of falls and attended by vomiting. According to Pukui and Elbert, the diagnosis and treatment are said to have been learned from the Portuguese. This suggests that the abdominal problems of volvulus and intussusception, which often may be corrected with massage of the abdomen, were known to native Hawaiian practitioners. I have found nothing to indicate that this diagnosis and treatment were considered for the prince.

This sad tale undoubtedly occurred many times in Hawai'i but never so well told as in this story about the little prince. What was at that time a tragic part of life, today, as with many other ills, requires only routine care of a well-known condition.

NOTES

¹ Rhoda E. A. Hackler, "Albert Edward Kauikeaouli Leiopapa a Kamehameha: Prince of Hawai'i," *HJH* 26 (1992):21-44.

² Hackler, "Albert Edward" 43n16.

³ I have used personal communications from Drs. Halford, Greenwell, and Reddy in the following discussion. There is general agreement among us with only minor divergences of opinion.

⁴ Hackler, "Albert Edward" 31-33.

⁵ Lili'uokalani, *Hawaii's Story by Hawaii's Queen* (Boston: Lothrop, Lee and Shepard, 1898) 19-20.

⁶ Richard H. Meade, "The Evolution of Surgery for Appendicitis," *Surgery* 55 (1964):741.

⁷ Robert E. Condon and Gordon L. Telford, "Appendicitis," in *Textbook of Surgery* (Philadelphia: W. B. Saunders, 1991) 884-85.

- ⁸ N. Senn, "A Plea in Favor of Early Laparotomy for Catarrheal and Ulcerative Appendicitis with the Report of Two Cases," *JAMA* 12 (1889):630.
- ⁹ Reginald H. Fitz, "Perforating Inflammation of the Vermiform Appendix: with Special Reference to its Early Diagnosis and Treatment," *Transactions of the Association of American Physicians* 1 (1886):107.
- ¹⁰ Robert C. Schmitt, "Labor Under Ether: Hilo, 1850," *Hawaii Medical Journal* 40.10 (Aug. 1980):291-92.

